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Sent: Friday, April 25, 2014 11:13 AM
To: Barbara Ritchie
Cc: Douglas.Tanner; Greutert, Ed [USA]; Kelly Wright; Scott Miller; Stifelman, Marc; susanh@ida.net; Zavala, Bernie
Subject: Comments on the FMC RD Deliverables
Attachments: 2014 04 24 Consolidated FMC RD Comments.docx

Categories: Lepic 4/19 to 5/2

Attached are EPA's and IDEQ's comments on the RD deliverables. I will send them under an EPA letter on Monday.

Kevin Rochlin

EPA Comments on FMC OU Remedial Design Submittals

March 2014

Engineering Design Submittals

General Comments:

1. The design documents leave construction deliverables for the RA contractor to prepare. In addition, the document provides for the Engineers review of 10 days (Page 01300-5). Many of these documents will require EPA review and approval. This timing has not been added to the Specifications.

Documents which EPA will require review and approval are the following (note some are review and comment without approval):

- H&S Plan (review and comment only);
- Stormwater Pollution Plan;
- SPCC Plan;
- Dust Control Plan;
- Materials Management Plan;
- Emissions Reduction Plan (Review and comment only);
- Water Management Plan;
- List of Permits (Review and comment only);
- Construction Plan; and
- Project Overview Bar Chart (at this time Review and Comment).

2. **Dust Control Plan Requirements.** The Dust Control and Monitoring Plan must be submitted in advance of the RA award. It can be modified by the contractor if necessary. Dust control activities and monitoring will probably require a significant amount of discussion. The following will need to be addressed:
 - The plan will need to provide for air monitoring for dust and site contaminants during remediation. Real time air monitors will be required both for particulate monitoring and as surrogates for contaminant concentrations. Air action levels will need to be developed. Hi volume air sampling or other means will also be required to provide confirmation for the real time monitors. Air monitor locations will need to be determined.
 - There will be a no visible dust goal for the site. Roadways will need to be kept free of dust by using water, dust suppressant or road cover material such as gravel.
 - The methodology for water application will need to be provided.
 - The materials used for dust suppression will need to be provided as well as rates and frequency of application.
3. Stormwater from the site will be infiltrated. Is there any issue associated with the locations of the infiltration and the design of the groundwater treatment system and its extraction wells?

4. EPA RCRA personnel have requested that the slag sump pit and surrounding area be left “untouched” as long as possible. This issue needs to be discussed with EPA to see how best to address it.

Specific Comments:

1. **Section 2.3.1, Nature and Extent of Contamination, Pages 2-7 and 2-8.** Section 2.3.1 identifies elemental phosphorus and radium-226 as the primary contaminants of concern (COCs) in surface soil. However, Section 2.4.2 states that the selected remedy is intended to address metals, radionuclides, and other COCs. For clarity, and to ensure that all possible exposure risks (including those to on-site remedial action words) are satisfactorily addressed, Section 2.3.1 should be expanded to identify which specific soil COCs were encountered within each remediation area (RA), including within the affected storm sewer drains to be cleaned as part of the remedial action from this operable unit (OU).

Section 2.3.2 refers to Table 2-2 for a listing of groundwater COCs, maximum detected concentrations (1991 to 2008), range, and associated maximum contaminant levels (MCLs). However, no such table appears to have been included with the draft RD report for review. Moreover, the extent of groundwater contamination is not indicated.

Finally, the title of Section 2.3.2 suggests that detail will also be provided on site-related contamination in surface water. Although the Portneuf River is identified as a potential receptor for groundwater contaminants (via base flow and bank seeps), no discussion has been provided with regard to surface water quality. Expand the RD Report to more fully describe the nature and extent of contamination at the FMC OU, specifically noting any contamination that will not be fully addressed through the planned remedial action effort.

2. **Section 2.4.2, Selected Remedy Summary for Site Soils, Pages 2-9 and 2-10.**
 - a. The third bullet on page 2-10 indicates that a long-term groundwater monitoring program will be implemented to evaluate performance of the selected soil and groundwater remedial actions. The groundwater monitoring program will also provide information in support of final groundwater remedy in the event that the current interim remedy cannot meet cleanup requirements “within an acceptable timeframe”. Additional detail should be provided to clarify the timeframe beyond which additional groundwater remediation would be pursued if necessary.
 - b. At the bottom of page 2-10, the RD Report notes that post closure activities are in progress for multiple, closed RCRA-regulated units at the FMC Facility. Work to be conducted as part of the selected CERCLA remedy for the FMC OU should be coordinated closely with ongoing RCRA activities to prevent damage to existing RCRA caps, leachate collection systems, and monitoring wells; allow for safe access as needed to conduct post-closure monitoring and maintenance; avoid interferences in terms of sampling/data collection; and minimize unnecessary duplication of effort.

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3. **Section 3.1.2, ET Caps, Pages 3-1 through 3-3.** ET caps over areas which contain slag or use slag as a base layer will require provisions for gamma monitoring just like any other slag area.
 4. **Section 3.1.5, Excavation, Page 3-5.**
 - a. As part of the selected remedy, the uppermost six inches of soil at RA-J, which is known to contain elevated levels of radionuclides, will be excavated. Text on page 3-5 of the draft RD Report suggests that mechanical mixing of the soil during excavation may reduce overall radionuclide concentrations in the excavated material to levels at which the soil would be acceptable for integration into the gamma and/or evapotranspiration (ET) caps. However, such mixing is considered impermissible dilution under RCRA and CERCLA, and this strategy cannot be used to avoid proper disposal of the excavated material. Accordingly, none of the radionuclide-contaminated surface soil excavated from RA-J may be used as surface capping material at the FMC OU. Moreover, the highest in-situ radionuclide concentrations should be used in making a determination as to whether the excavated soil can be used as part of the cap subgrade material (while still maintaining adequate protections for human health and the environment). This clarification should be made in Sections 3.1.5 and 4.4 of the RD Report, Drawings 10 and 48 in Appendix A, and Specification 01010 in Appendix C. The Transportation and Off-site Disposal Plan (TODP) should also be expanded to include appropriate procedures for characterization, management, and shipping of the excavated soil from RA-J. RA-J surface material should not be used for the top cover layer of the cap.
 - b. This section should be expanded to specify which COCs will be included in the post-excavation soil sampling program at RA-J to demonstrate that all appropriate remedial action objectives (RAOs) have been met. RA-J confirmational sampling does not necessarily need to be performed using standard laboratory sampling methods. Gamma survey techniques, developed for the gamma caps, should also be adequate to meet RAOs in these areas. If practical and successful methods using survey techniques are demonstrated for the main site, the RD could consider leaving the option open to apply the same methods at RA-J.
 5. **Section 3.1.6, Underground Stormwater Piping, Pages 3-5 and 3-6.** The first full paragraph on page 3-6 states that the planned ET cap at RA-B will be extended to cover any RA-A or RA-B pipe segments that cannot be effectively cleaned. Stormwater piping beneath an ET cap will also be abandoned with cement grout to prevent passage of contaminated water and sediments. The procedure to be used for abandonment should be provided in the RD Report, or the text should include a reference to Specification 02080 in Appendix C.
 6. **Section 3.2.2, Gas Monitoring Program, Page 3-8.** This section states that a gas monitoring program will be implemented, in part, to “identify potential changes in the basic soil properties (physical and chemical) within the cap materials that would threaten the cap integrity or vegetative cover”. Additional detail should be provided in this section on the scope of the gas monitoring program and how, specifically, the results will

be interpreted in evaluating integrity of the caps and associated vegetation. The gas monitoring program will need to be coordinated with the RCRA program to ensure consistency of the approaches.

7. Section 4.1, Site Clearance, Pages 4-1 and 4-4.

- a.** Any of the materials removed during the CERCLA remediation will need to be managed as CERCLA wastes.
- b.** Table 4.1 identifies numerous RCRA and CERCLA wells proposed for abandonment as part of site clearance activities. Revise the text to confirm that none of these wells are necessary for ongoing monitoring.
- c.** Ensure that the table numbers provided in the text throughout Chapters 4 and 5 are correct and refer to the appropriate tables.

8. Section 4.1, Site Clearance, Table 4.1. This section outlines infrastructure to be removed, relocated, or abandoned during site clearance activities conducted in preparation of remedy implementation. Table 4.1 should be expanded to specify waste characterization requirements for, and anticipated disposition of, the removed material. This is particularly important with regard to materials and infrastructure that may contain creosote, polychlorinated biphenyls, or other hazardous constituents. In addition, it is recommended that the potential for environmental contamination be assessed after infrastructure removal in areas at which backfilling is planned (e.g., the former waste storage pad at RA-C, inlets to the stormwater piping at RA-B, electrical vaults at RA-A, the IWW pipe inlet at RA-G, the car dumper and associated grizzly unit at RAs A and G). Note on the table whether these materials are only solid waste or whether they meet any hazardous waste designations.

9. Section 4.1, Site Clearance, Table 4.2. Table 4.2 identifies a list of RCRA monitoring systems and CERCLA monitoring wells that will be adjusted and incorporated into the selected remedy. For clarity, provide or reference a map showing the locations of these wells, in relation to the RAs and remedy components.

10. Section 4.1, Site Clearance, Page 4-4. How will boundaries between ET caps and gamma caps be determined in the field?

11. Section 4.2.1, Site-Wide Grading Design Criteria and Philosophy, Pages 4-4 and 4-5.

- a.** This section outlines specific grading requirements for areas receiving a gamma cap or an ET cap. It is unclear how the extent of each cap will be identified in the field, such that appropriate grading can be completed. Revise the text to indicate whether the extent of each cap will be surveyed and indicated in the field using marking paint, pin flags, or other methods to ensure that the subgrading is appropriately implemented. In addition, clarify how underground utility easements will be identified, so as to avoid placing fill in these areas (as called for in the first bullet). Procedures to determine and identify these features in the field should be noted in

Section 3.2(J) of Specification 01018 (Appendix C). Where gamma cap RA boundaries are set based on visual observation, gamma surveys should be extended beyond the RA boundaries to confirm the RAOs for the site have been met.

- b. The first full paragraph on page 4-5 states that, at RAs where phosphy solids are present, the extent of capping is delineated by soil borings with COC concentrations below relevant soil screening levels (SSLs). This approach is appropriate for mitigating potential exposure pathways associated with contaminant exceedances at the surface and shallow subsurface. However, the RD Report states that, where the boundaries of contamination have not been delineated by clean borings or test pits, the cap will extend beyond the location of the furthest impacted boring by approximately 20 feet. Additional justification should be provided for this approach, as it is possible that exceedances may be present in surface or shallow subsurface soils beyond the arbitrary 20-foot perimeter of known impacts. Without data to show that all significant soil contamination has been capped, FMC will not be able to confirm that current and future risks have been properly mitigated upon completion of remedy implementation.

12. Section 4.2.2, Site-Wide Grading Material Balance, Page 4-5. The fifth bullet on page 4-4 indicates that, where possible, the remedy will be implemented such that there is a balance between cut and fill within individual RAs. In order to assess the likelihood of achieving this objective, Table 4.3 (on page 4-5) should be expanded to include material balance volume estimates for each RA, in addition to total cut and fill volumes. The text of section 4.2.2 should also include estimates of the volume of excavated soil that will require off-site disposal and the volume of clean backfill that will need to be imported from off-site sources and/or the proposed borrow site in the Western Undeveloped Area. The source and volume of coarser-grained material proposed for construction of the capillary break layer in the ET caps should also be specified.

13. Section 4.5, Stormwater Pipe Cleaning and Abandonment, Pages 4-7 and 4-8. The text immediately preceding Table 4.4 (on page 4-8) states that wastes generated during clean-out of the stormwater sewer piping at RA-A and RA-B will be fully characterized, managed, and disposed in accordance with the TODP. However, Table 2.1 of the TODP indicates that only generator knowledge and historic toxicity characteristic leaching procedure (TCLP) results will be used to make a hazardous waste determination for these sediments. The table should clarify that a visual assessment will be completed to determine the presence or absence of elemental phosphorus, and that a representative number of sediment samples will be collected for actual TCLP analysis. This is important given the fact that the TODP proposes to dispose sediments that do not contain elemental phosphorus and have been deemed nonhazardous on the FMC site. The TODP should specify the proposed on-site disposal location(s) for sediment from RA-A and RA-B.

14. Section 4.6, Site Access and Security, Page 4-6. Areas where slag is used as the break under the ET cap will require post remediation gamma survey. The frequency and locations need to be discussed with EPA.

15. Section 5.1.2, Performance Evaluation Findings, Pages 5-1 and 5-2.

- a. The text at the top of page 5-2 indicates that the test gamma cap was constructed with higher than optimal compaction rates for viability of vegetation. The RD Report then states that this issue will “most likely” be addressed during implementation of the remedy, and that the target compaction rate is 85% of the maximum dry density (MDD). It is unclear why the over-compaction issue may not be addressed during remedy implementation, and how FMC intends to overcome long-term stabilization issues that may occur should the final caps also be over-compacted. Expand the text to address these issues. The text should also specify what compaction rates will be deemed acceptable (around the targeted 85% of MDD) and what testing is planned to assess constructed cap compaction rates. Alternatively, this portion of the text can refer to Specification 02222 in Appendix C for further technical detail.
- b. Paragraph (a) at the bottom of page 5-2 indicates that a 12-inch thick gamma cap should be sufficient to meet RAOs if the radium-226 concentration in underlying slag is no greater than 30 picocuries per gram. However, this assumption could not be confirmed under field conditions. Paragraph (b) points out the need for alternative instruments for measuring post-construction radiation levels above the gamma caps. These issues are currently being evaluated further by FMC, with EPA oversight. It should be pointed out that slag material containing radionuclides may also be used during construction of the capillary break layer in the ET caps. Accordingly, these ongoing gamma cap evaluations may yield information pertinent to the ET caps. Expand the draft RD Report to discuss the sufficiency of the proposed ET cap thickness (above the capillary break layer) and any additional precautions or post-construction radiation surveys that will be needed to ensure that the ET covers are adequately protective of human health and the environment.

16. Section 5.3, Re-Vegetation and Erosion Control, Pages 5-5 and 5-6.

- a. This section outlines that seed mix that will be used to revegetate the ground surface after construction of the gamma and ET caps is complete. The proposed mix is the same as that used on for vegetation of the RCRA pond caps. This section of the RD Report should be clarified to note whether the proposed mix is a standard seed product (and to identify that product). If the proposed seed mix is unique to the FMC Facility, the text should include discuss whether, based on previous experience at the RCRA ponds and observed growth patterns, any adjustments to the mix would allow for greater success in revegetation for the current project. This section should also be expanded to discuss any soil amendments that will be used to facilitate revegetation, as described in Section 7.5 of the Construction Quality Assurance Plan in Appendix D.
- b. Presumably plans to re-vegetate include RA-J and WUA where soil is to be removed. Are any provisions needed for soil amendment to support new vegetation at these locations?

17. Section 6.3, Site-Wide Stormwater Management Design Report, Page 6-1. This section states that the stormwater management system will be constructed to maintain the Facility as a zero discharge system under design precipitation events. Expand the test to indicate the size of the precipitation event for which the system is being designed.

18. Section 6.4, Health and Safety Plan, Pages 6-1 and 6-2. The contractors H&S plan will require a significant amount of information related to performing remedial action including setting up decontamination areas, exclusion zones, ingress/egress to exclusion zones etc.

19. Section 7.2, Transportation and Off-Site Disposal Plan, Page 7-1. This section of the draft RD Report States that the TODP includes plans to minimize potential impacts of waste transportation on nearby communities. In actuality, the TODP suggest that the waste loading is so small that “plans to mitigate impacts to communities [through which wastes will be transported] are not warranted”. This situation should be revisited based on the fact that excavated material from RA-J cannot be incorporated into surface components of the gamma or ET caps, and may or may not be suitable for use in the subgrade cap layers. It is possible that the excavated soil will require alternative management. FMC should quantify the volume of material to be excavated from RA-J, evaluate potential effects related to off-site transport of this material, and develop plans to minimize those impacts.

20. Section 8.0, Schedule for RA, Page 8-1. Site-wide grading is planned to begin in July 2014. Methods for gamma verification testing are being developed. EPA recommends that FMC prepare a small (1-2 acre) field demonstration of performance standard verification for gamma surveys on a completed portion of gamma cap (possibly this year) to show that the methods are successful? The alternative appears to be to wait until the entire cap is complete.

21. Appendix A, Design Drawings, Drawing 10, Note 2. Note 2 on this drawing indicates that grubbed vegetation will be returned to RA-J after excavation of the uppermost six inches of soil. It is unclear whether this grubbed vegetation will be generated site-wide or only within the confines of RA-J. The note then indicates that the vegetation will be covered by a layer of slag, but no source or potential for contamination is discussed. The RD Report text did not mention this component of the project, and the Table 2.1 of the TODP indicates that cleared vegetation (e.g., brush and trees) will be disposed at the Bannock County Landfill in Pocatello. The cleared vegetation should be disposed off-site, and the note should be revised for consistency with the TODP.

22. Appendix A, Design Drawings, Drawing 40.

a. Can the ponds be outlined so that they show up on the sheet?

b. Pond 2 does not seem to have any flow lines going to it. Is this accurate?

c. Basins 6 and 9 and the east side of 8 do not seem to drain to a pond.

23. Appendix A, Design Drawings, Drawings 44 through 48.

- a. Drawing 50 provides design detail for construction of both lined and unlined stormwater channels. However, no distinction is made on Drawings 44 through 48 as to which channels will be lined and which will be unlined. Revise the key on Drawing 2 to distinguish between these two types of channels, and revised the stormwater drawings accordingly. In addition, criteria for selecting one type or the other should be included as a note on the drawings, or detailed in the text of the Site-wide Stormwater Management Design Report in Appendix E.
- b. Drawing 44 attempts to show connections between drainage basins and ponds, but the flow paths remain unclear. To clarify the movement of surface water across the FMS Facility, this drawing (and support detail in Drawings 45 through 48) should be revised to clearly identify (e.g., outlined or shaded in color) the extent of the various basins and pond. A table should be provided on Drawing 44 to clearly document which RAs drain into which basins, and which basins drain into which pond (similar to that provided as Table 4-3 in Appendix E). Based on a review of the figure as currently presented (and contrary to information provided in Appendix E), it appears that the following connections are anticipated:
 - Basins 1 and 2 to Pond 1
 - Basin 3 to Pond 3
 - Basins 4 and 7A to Pond 4
 - Basins 5, 7, and 7A to Pond 7
 - Basins 6 and 9 to Basin 3 and then to Pond 3
 - Basin 8 to Pond 5

Pond 6 should be added to Drawing 44 along with its drainage areas, and the drawing should clarify drainage areas upstream of Pond 2. Anticipated surface flow paths from the capped areas should also be shown on the drawing with black arrows (as identified on Drawing 2).

24. Appendix A, Design Drawings, Drawing 49.

- a. **2/49** – The thickness for the gamma caps has always been discussed as approximately 12 inches. The ET caps are being designed using a slag subgrade. Is there any difference in field placement, compaction etc. that could cause the 30 inch ET caps to not be effective in shielding gamma?
- b. **3/49** – Is the 30 inches accurate or should it be 24 inches?
- c. The representation of ET cap design on this drawing is inconsistent with regard to the thickness of cover soil to be placed above the capillary break layer. Inset 1 indicates that this soil layer will be 24 inches thick, complemented by an overlying 6-inch layer of topsoil. Insets 3 and 4, however, show the soil layer as being 30 inches thick – again, overlain by a 6-inch layer of topsoil. Clarify the actual thickness of this component of the cap, and correct the drawing accordingly. In addition, inset 4 refers to Note 1 with regard to the screened slag layer of the ET cap, but no such note is included on the Drawing. Clarify the issue this note is intended to address.

25. Appendix C, Construction Specifications, Section 02160, Sediment and Erosion

Control. The contractor is required to prepare the Storm Water Pollution Prevention Plan (SWPPP), and then implement the best management practices described here. The contractor is also required to provide locations for SWPPP and then implement them. Should FMC provide guidance for where these are likely to be required?

26. Appendix C, Construction Specifications, Section 02222, Earthwork and Grading.

- a. This specification provides gradation limits for various materials to be used for filling and capping at the FMC Facility. Details on the components of the gamma and ET caps should be listed in this specification, along with a cross-walk between the available materials and cap requirements.
- b. The target requirement for compaction of the ET cap to 85% of the MDD should also be states in paragraph M. included in this specification to In addition to these limits, the specification should also specify limits on Section 1.2 of this specification identified a number of plans that remedial action contractors will be required to submit prior to implementation of the selected remedy. These submittals include, but are not limited to, a project-specific Health and Safety Plan, the Stormwater Pollution Prevention Plan, the Dust Control and Monitoring Plan, and a Materials Management Plan. FMC should be aware that many of these documents will require EPA approval and possible revision prior to initiating associated field work. This review component should be incorporated into the project schedule to ensure the success of the remedial action.

27. Appendix E, Draft Sitewide Stormwater Management Design Report:

- a. Section 1.2, Facility Location and Brief Description, Page 1. This discussion should be revised based on the fact that excavated material from RA-J cannot be incorporated into surface components of the gamma or ET caps and may or may not be suitable for use in the subgrade cap layers.
- b. Provide a figure showing drainage basins, locations of proposed stormwater conveyance and locations for infiltration galleries. This should also be included in the other design documents. The figure can be a new one, or use Sheet 44.

FMC Support Documents

Draft Emergency Response Plan

- 1. **Section 1.2, Project Description, Pages 1-2 and 1-3.** This section of the plan must be updated to reflect the fact that excavated material from RA-J cannot be used as surface fill material, and may be excluded from use as subsurface grading material, for planned capping activities. The description should also note that stormwater piping will be cleaned in RA-A and, to the greatest extent practicable, within RA-B.

2. **Section 4.3.4, Undocumented Subgrade Conditions, Page 4-6.** This section outlines procedures to be implemented if unanticipated subgrade conditions, including the unexpected presence of elemental phosphorus, are encountered during intrusive field activities. After the extent and volume of contaminated material has been ascertained via trenching, the contractor will make a determination as to whether the contaminated material and inert soil cover “can be safely moved using available equipment”. The discussion should be expanded to include the criteria upon which this determination will be made in the field.
3. **Section 5.2, Alarm Warning Systems, Page 5-2.** This section addresses emergency communications between field team personnel, including visual signals to be used in the event that high noise levels do not permit direct voice communications. Because of their infrequent usage, these visual signals should be reviewed during daily safety briefings when high noise levels are anticipated.
4. **Section 7.3.2, Emergency Completion, Page 7-3.** This section states that, after an emergency situation has been resolved, waste generated during the emergency response action (e.g., recovered waste, contaminated soil or surface water, fire or explosion debris) will be handled and disposed in accordance with the TODP. However, Table 2.1 does not identify management and disposal options for these materials (unless they qualify as soil/fill containing oils/fuels or nonhazardous water/sediment). Although planning is not possible for all aspects of an emergency response, additional guidance on characterization, management, and disposal of emergency response wastes should be provided in the Emergency Response Plan or the TODP.
5. **Appendix A, Draft Spill Prevention, Control and Countermeasures Plan, Section 1.2, Project Description, Page 1-2.** This discussion should be revised based on the fact that excavated material from RA-J cannot be incorporated into surface components of the gamma or ET caps, and may or may not be suitable for use in the subgrade cap layers.

Draft Transportation and Off-Site Disposal Plan

1. Excavated soil from RA-J cannot be used as surface material for the planned gamma or ET caps, and may even be unacceptable for use as subsurface capping material. Table 2.1 should be revised to indicate the anticipated disposition of, and receiving facility for, this excavated material. Pursuant to Section IX, paragraph 35 of the Unilateral Administrative Order, FMC should now complete all appropriate verifications and notifications required for the waste management facilities identified in Section 4.1 (with the exception of Bannock County Landfill, for which required notifications have already been provided).

Preliminary Draft OM&M Plan

1. **Section 2.4.2, Selected Remedy Summary for Site Soils, Pages 2-3 and 2-4.** Revise this Section to note that excavated soil from RA-J cannot be used as surface material for the planned gamma or ET caps, and may even be unacceptable for use as subsurface

capping material. Accordingly, this excavated material may require off-site disposal, rather than consolidation within the former operations area.

2. **Section 3.1, ET Caps, Pages 3-1 and 3-2.** As detailed in this section, monitoring requirements differ for ET caps based on whether they are location above areas with or without elemental phosphorus. The text of this section, and graphics in Figure 2-2, should clearly distinguish between these areas to ensure that monitoring programs are properly implemented.
3. **Section 3.2.1, Monitoring Requirements for Gamma Caps, Page 3-3.** In the event of a major failure to the gamma cap, additional gamma monitoring will be required to ensure that repair is complete. The plan should include criteria that specifies when gamma surveys would be needed following major repairs, modifications, or changes to the caps.
4. **Figures.** Because there are O&M requirements for elemental phosphorus areas and for non-elemental phosphorus area ET caps, provide a figure demarcating the locations of each.
5. **Figure 2-2.** This figure can be amended to show elemental phosphorus and non-elemental phosphorus areas. The note to Detail A pointing to area RA-K is difficult to follow as is the note pointing to the sewer piping (which looks like it is referring to the same blocked area). Amend the drawing to be clearer.
6. **Table 3.1.** The frequency of inspections should be quarterly during the first year for those marked semiannually.
7. **Table 3.2.** The frequency of inspections should be quarterly during the first year for those marked semiannually.
8. **Table 3.2.** Phosphine gas survey needs to be more frequent than annually. The frequency needs to be discussed with EPA.
9. **Table 3.3, 3.4, 3.5.** The frequency of inspections should be quarterly during the first year for those marked semiannually. Revise these tables accordingly.

Preliminary Draft Performance Standards Verification Plan

1. **Section 1.2, Project Description, Pages 1-2, and 1-3.** Revise the first bullet on page 1-3 to note that excavated soil from RA-J cannot be used as surface material for the planned gamma or ET caps, and may even be unacceptable for use as subsurface capping material.
2. **Section 3.1, ET Caps, Pages 3-1 and 3-2.** Since one of the objectives of the ET caps is to prevent gamma exposure, these caps should be surveyed in the same way as the gamma caps to confirm that objectives have been met for gamma exposure.

3. **Section 3.5.1, PSVP for Sitewide Stormwater Runoff Management, Page 3-6.** This section indicates that the sitewide stormwater management system will be evaluated through routine semiannual inspections and ad hoc monitoring after significant precipitation (i.e., 25-year, 24-hour storms) or seismic events. Verified damage to the stormwater management system will be considered an action trigger and repairs will be implemented within 7 days. However, other conditions could indicate failure or inadequacy of the stormwater management system, which would, in turn, affect success of the selected remedy. For example, accumulation of stormwater runoff in unexpected locations could result in contaminant migration from soil to groundwater. Surface water flow in unanticipated directions could negate the zero stormwater discharge status for the FMC plant site. This section of the PSVP should be expanded to also include these significant action triggers for the stormwater management component of the selected remedy. Table 5 of the PSVP should be modified to link the above action triggers to the stormwater management system operation as a whole, and to include action triggers specific to the engineered detention ponds (e.g., overtopping, accumulation of foreign materials).
4. **Appendix A, Section 2.3, Table 1.** No cleanup level is listed for Uranium-238. The table should be revised to include Uranium-238.
5. **Appendix A, Section 3.3: Table 1.** As an alternative to sampling, survey-based gamma measurements and MARSSIM methods applied elsewhere at the site could be used at RA-J if proven successful.

Draft Institutional Control Implementation and Assurance Plan.

Note that these are preliminary comments on this document. Additional comments may be provided at a later date.

1. **Section 2.2.4, Selected Remedy Summary, Pages 5 and 6.** Revise this section to note that excavated soil from RA-J cannot be used as surface material for the planned gamma or ET caps, and may even be unacceptable for use as subsurface capping material. Accordingly, this excavated material may require off-site disposal, rather than consolidation within the former operations area.
2. **Section 3.2.1, Soil Remedial Action Institutional Controls, Pages 13 and 14.** As detailed in this section, institutional controls differ for ET caps based on whether they are located above areas with or without elemental phosphorus. These areas should be clearly differentiated in Section 3.2.1 (and its subsections), in Table 3, and on Figure 5 to ensure that controls are properly implemented and maintained.

IDEQ Comments on FMC OU Remedial Design Submittals
 March 2014

Document Reviewed: FMC OU Remedial Design Soil Remedial Action DESIGN DRAWINGS (30%); Power County, Idaho Eastern Michaud Flats Superfund Site	Reviewers Name:	Initials
April 1, 2014	Wayne Crowther	WC

Reviewer (initials)	Page	Line/ Table/ Figure	Comment	Proposed Resolution
General Comments				
WC	Cover Page		All final documents will need to be stamped and signed by a licensed professional engineer	
WC		Plans	Include the SWPPP as part of the design drawing	
WC	-	Plans	Provide documentation if the ponds are lined.	
WC	-	Plans	Document if future sediment collected from the ponds will be tested for contaminants of concern/characterized.	
WC	-	Plans	Show profiles for the drainage channels.	

Document Reviewed: FMC OU Remedial Design Soil Remedial Action DESIGN DRAWINGS (30%); Power County, Idaho Eastern Michaud Flats Superfund Site	Reviewers Name:	Initials
February 27, 2014	Wayne Crowther	WC

Reviewer (initials)	Page	Line/ Table/ Figure	Comment	Proposed Resolution
Specific Comments				
SM	4-3	Table 4.1	Please include all wells proposed for abandonment on a single figure.	
SM	4-4	Lines 2-5	A figure showing the fencing proposed for temporary removal would be helpful.	
SM	5-5	Section 5.3, line 1	Delete the first “will” so the text reads ‘the site areas will...’.	
WC	DWG 2	Legend	Include the symbol for the control points.	
WC	DWG. 3		Indicate what the different colors in the table are.	
WC	DWG 4-8	Notes	Add note to reference DWG 3 for boring and monitoring well tables.	
WC	DWG 6	Middle of sheet	There is a conflict between the line type and the call out for the Tesoro Pipeline. It is unclear if it is gas or oil, revise as appropriate.	
WC	DWG 6-7	Note 3	Please verify if the height of the monitoring point is to be 6.5 feet or inches above final grade.	
WC	DWG 7	Middle of sheet	The tags for the monitoring wells are co-mingled. Reference Well 500 on the drawing.	
WC	DWG 8	Site Clearance Table	Add a column for sheet # to aid in location of the site clearance item.	
WC	DWG 15	Cross-section references	Cross-section references Drawing 25. These cross-sections are not found on that drawing.	
WC	DWG 16	Cross-section references	Cross-section references Drawing 25. These cross-sections are not found on that drawing.	
WC	DWG 16	Contours	Between the control points 46 & 70 on RA-H there are several unlabeled contour lines between the 4585 on the west and the 4585 on the east. Clarify the elevation contours in this area.	
WC	DWG 17	Cross-section references	Cross-section references Drawing 25. These cross-sections are not found on that drawing.	
WC	DWG 17	North side of RA-B	There are two monitoring wells with tags on each other, please fix so both are legible.	
WC	DWG 18	Cross-section references	Cross-section references Drawing 26. These cross-sections are not found on that drawing.	
WC	DWG 19	-	Classify the waste that the contractor is to consolidate.	
WC	DWG 26-31	Various Cross-Sections	Indicate slopes on the top of the graded RA’s to aid in slope preparation, and H:V for steeper side slopes.	
WC	DWG 32	Detail 1	Grading control points are not shown	

Reviewer (initials)	Page	Line/ Table/ Figure	Comment	Proposed Resolution
			on DWG 17	
WC	DWG 32	Detail 2	Grading control points are not shown on DWG 17	
WC	DWG 32	Detail 10	Detail indicates grading control points are being shown on this drawing.	
WC	DWG 41	Table	It is assumed that the volumes of sediment are estimated for the various piping segments.	
WC	DWG 45	Un-named drainage	There is an un-named drainage channel south of the area between Basin 8 and Basin 9 with channels 9-1 & 9-2 contributing to it. Please indicate what treatment this area will receive to prevent erosion.	
WC	DWG 46	-	Diversion channel 1-P cannot be found on this drawing.	
WC	DWG 47	Basin 2	There are no channels shown to collect or convey stormwater to Pond 2.	
WC	DWG 50	-	Indicate what ditches get lined and what treatment they receive.	
WC	DWG 50	Detail 7	Show the direction of flow over the cut-off wall and the relief between the concrete and the soil.	